



Driving Wedge™ under the Arabian Gulf

The combination of TenarisHydril Wedge Series 500™ connections and Dopeless® technology is helping to boost productivity at one of the world's largest fields.

Summary

An ambitious project in the Emirates

Located 80 km from Abu Dhabi and covering 1,200 km² of marine area, the project took place in one of the world's largest oil and gas fields.

The project called for the construction of artificial islands in waters up to 60 m deep. These islands were then used to install onshore drilling and production equipment, which was used to drill horizontally beneath the ocean floor.

With the horizontal section of the wells extending beyond 10,000 ft, a critical aspect of the project was the connection technology to withstand extreme loads.

The high levels of compression, bending and torque resistance of TenarisHydril Wedge 521™ connections – together with their increased clearance – made the technology a good option for this particular application. Additionally, significant time savings have been achieved by using Dopeless® technology in the liner strings.

PROJECT PROFILE

Location

Abu Dhabi
(United Arab Emirates)

Field

Offshore

Type of wells

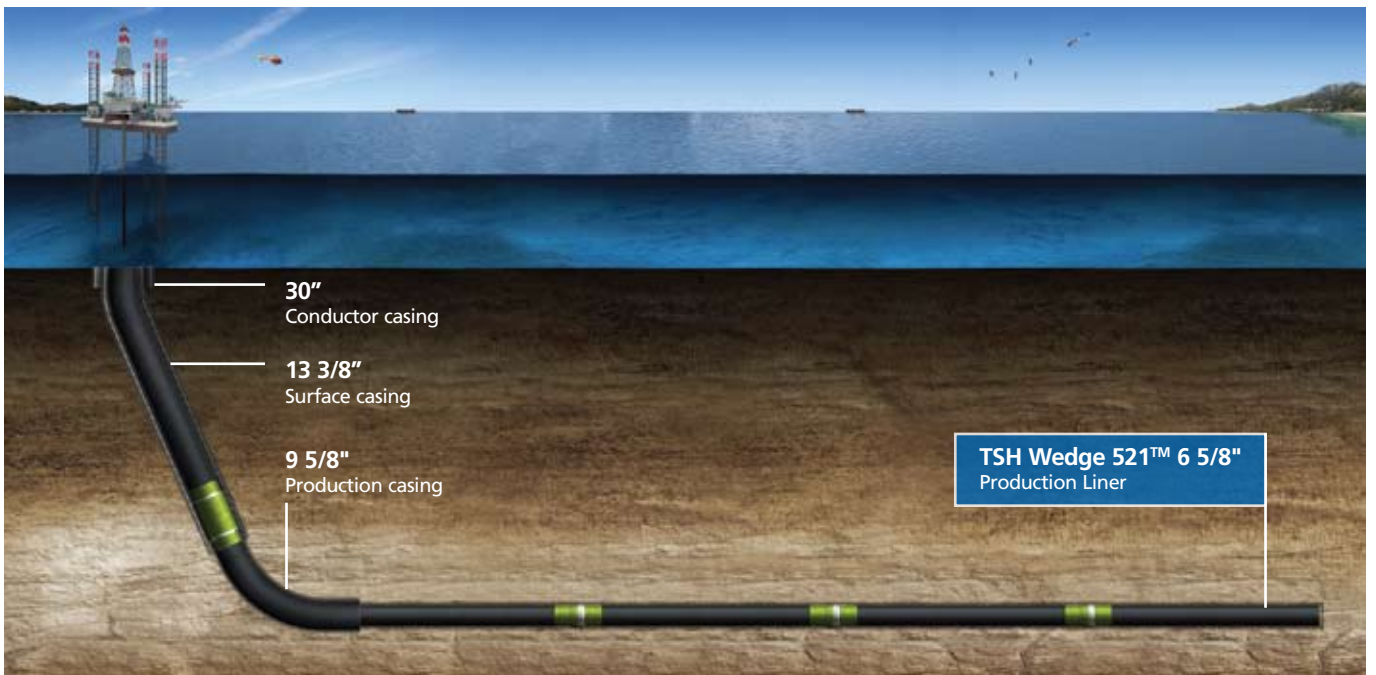
Onshore to an offshore location; extended reach wells

Products highlighted

- 6 5/8" liner with TenarisHydril Wedge 521™
- 6 5/8" liner with TenarisHydril Wedge 521™ Dopeless®

Services provided

- Running assistance



▲ TenarisHydril Wedge Series 500™ connections were chosen for an ambitious ERD project in the Emirates.

Challenges

A race against time

The project specifies the drilling of nearly 250 extended reach wells over a five-year period. Reducing the time for drilling operations will be a key factor to achieve this ambitious plan. Fast running jobs are imperative in horizontal wells for technical reasons too, as the risk of an open hole collapsing is higher than in vertical wells.

Highly deviated wells

Near the producing wells, similarly designed wells will be drilled to boost reservoir pressure by injecting water and gas. The planned trajectory for these injector/producer extended reach wells consists of a 30" conductor casing, followed by a 13 3/8" surface casing and a 9 5/8" production casing. At that point (approximately 9,500 ft of measured depth), the horizontal section of the wells starts, with a 6 5/8" liner adding a 10,700 ft step-out for a total horizontal displacement of 13,750 ft.

Such well geometry places critical demands on the pipes and their connections, particularly in situations when they need to be pushed, bent and rotated into place, which demand connections that ensure high levels of compression, bending and torque resistance.

Into the thin of the well

Another typical characteristic of horizontal drilling operations is that casing has to be dragged through the formation for several kilometers. Threaded and coupled connections are not ideal for these conditions, because their considerably larger outside diameter (versus the pipe OD) can hamper the smooth running of the string.

Solution

The first three exploratory wells were drilled in 2010. Tenaris was involved in their development from the outset.

Exceptional strength

The 6 5/8" liners that were run at a 90-degree inclination in both the injector and oil producer wells were fitted with TenarisHydril Wedge 521™ connections.

These premium connections are ideally suited for extended reach applications because they balance reduced clearance and high compression resistance -beyond 80% of pipe body-, which is

a truly exceptional rate for integral connections. Just as importantly, given that the opposing flanks of the dovetail Wedge™ threads simultaneously engage, they are able to withstand extreme torque.

The Dopeless® alternative

The fact that the injector and the producer wells had very similar characteristics provided the customer with a great opportunity to test the acclaimed operational advantages of Dopeless® technology.

Of the 267 Wedge 521™ joints that formed the liner string at one of the wells, 245 were run with Tenaris's dry coating. Both the standard and the Dopeless® versions of Wedge 521™ connections are fully interchangeable. However, since Dopeless® technology arrives rig-ready, it eliminates a number of preparation and running activities that bring about measurable time and cost savings.

Field support

Tenaris provided training and running assistance to the rig crew, which contributed to the successful and smooth completion of the job.

Results

Running faster

The robustness of the pipes with the Wedge 521™ connections allowed the operator to reach the target depth for both wells with no reported problems and zero rejects.

Average running time for the connections that required the use of dope was 10.65 joints per hour. Meanwhile, the Dopeless® version of the same connection registered an average running speed of 14.47 joints/hour – a 36% improvement. As a consequence, the 6 5/8" liner run in one well with Dopeless® technology took approximately five fewer hours to hit TD compared with the string run in the other well with the standard connections.

Renewed commitment

The fact that Tenaris was able to provide the customer with not only premium tubular products but also relevant technical advice together with a complete package of associated field services has led the company to expand the use of Wedge Series 500™ and Dopeless® products as it moves ahead with the development of this offshore project.



For contact information, please visit our site:

www.tenaris.com